

Listing of Claims:

1 to 12. (Cancelled)

13. (Currently Amended) A switch for switching time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

(A) means for switching a TDM data from an input port to an output port, comprising:

means for storing the TDM data in a single shared memory based on a time slot of a frame in which the TDM data was received; and

(B) means for switching a packet data from an input port to an output port, comprising:

means for storing the packet data in said single shared memory based on routing data embedded in the packet data and based on the input port which received the packet data, wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion and wherein each address of the TDM memory portion is assigned to a respective time slot of a respective frame.

Claims 14 to 20. (Cancelled)

21. (Currently Amended) A switch to switch time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

a plurality of input ports to receive data, wherein each data comprises either TDM data or packet data;

a plurality of output ports to transmit switched data;

a single shared memory coupling said input ports to said output ports, said single shared memory to receive sequentially all TDM data and all packet data received from said input ports, said single shared memory to store both TDM data and packet data, said single shared memory to switch all sequentially received TDM data and packet data received from respective input ports to respective output ports, and wherein switching of any received TDM data is based on input time slots of said TDM data;

a time slot interchange controller coupled to said single shared memory to select addresses in said single shared memory to store TDM data, said time slot interchange controller to select an address of said single shared memory for a TDM data based on a time slot of a frame in which said switch received the TDM data, wherein said time slot interchange controller selects a same address for said single shared memory each time TDM data is received in a respective time slot of a respective frame; and

a packet switch controller coupled to said single shared memory to select addresses in said single shared memory to store packet data, said packet switch controller to select an address of said single shared memory for a packet data based on routing data embedded in the packet data and based on the input port which received the packet data.

22. (Previously Presented) A switch as claimed in claim 21, wherein each data is received by an input port as a time slot in a frame.

23. (Previously Presented) A switch as claimed in claim 21, wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion.

24. (Previously Presented) A switch as claimed in claim 21, wherein said single shared memory treats the input ports as logical input ports.

25. (Previously Presented) A switch as claimed in claim 21, wherein said single shared memory to place sequentially received packet data in a queue for a respective output port.

26. (Previously Presented) A switch as claimed in claim 21, wherein the data are received by said input ports and transmitted by said output ports as data exchange units.

27. (Cancelled)

28. (Previously Presented) A switch as claimed in claim 21, wherein the switching of a data from a respective input port to a respective output port is controlled by a stored switch configuration.

29. (Previously Presented) A switch as claimed in claim 21, further comprising:
an input data router to route sequentially data from said input ports to said single shared memory; and

an output data router to route sequentially data from said single shared memory to said output ports.

30. (Previously Presented) A switch as claimed in claim 21, wherein the data are received by said input ports and transmitted by said output ports as data exchange units, the data

exchange units for packet data comprise routing information, the switching of a data exchange unit from a respective input port to a respective output port is controlled by a stored switch configuration, said stored switch configuration uses the routing information of data exchange units for packet data to determine respective output ports to switch the data exchange units.

31. (Currently Amended) A method for switching time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

(A) switching a TDM data from an input port to an output port, comprising:

storing the TDM data in a single shared memory based on a time slot of a frame in which the TDM data was received, wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion and wherein each address of the TDM memory portion is assigned to a respective time slot of a respective frame; and

(B) switching a packet data from an input port to an output port, comprising:

storing the packet data in said shared memory.

32. (Previously Presented) The method of claim 31, wherein the TDM data is stored in a preselected area of said single shared memory, wherein said preselected area is based on a time slot in a frame in which the TDM data was received by the input port.

33. (Previously Presented) The method of claim 31, wherein the output port for the TDM data is determined based on the time slot in the frame in which the TDM data was received by the input port, and wherein the output port for the packet data is determined based on routing data embedded in the packet data and based on the input port which received the packet data.

34. (Currently Amended) A switch for switching time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

(A) means for switching a TDM data from an input port to an output port, comprising:

means for storing the TDM data in a single shared memory based on a time slot of a frame in which the TDM data was received, wherein said shared memory comprises a TDM data memory portion and a packet data memory portion and wherein each section of the TDM data memory portion is assigned to a respective time slot of a respective frame; and

(B) means for switching a packet data from an input port to an output port, comprising:

means for storing the packet data in said shared memory.

35. (Currently Amended) A switch for switching time division multiplexed (TDM) data and packet data from input ports to output ports, comprising;

a plurality of input ports to receive data, wherein each data comprises either TDM data or packet data;

a plurality of output ports to transmit switched data;

a shared memory coupling said input ports to said output ports, said shared memory to receive sequentially the data received from said input ports, said shared memory to switch a sequentially received data from a respective input port to a respective output port;

a time slot interchange controller coupled to said shared memory to select addresses in said shared memory to store TDM data, said time slot interchange controller to select an address of said shared memory for a TDM data based on a time slot of a frame in which said switch received the TDM data, wherein said time slot interchange controller selects a same address for

said shared memory each time TDM data is received in a respective time slot of a respective frame; and

a packet switch controller coupled to said shared memory to select addresses in said shared memory to store packet data, said packet switch controller to select an address of shared memory for a packet data based on routing data embedded in the packet data and based on the input port which received the packet data.

36. (Previously Presented) A switch as claimed in claim 35, wherein each data is received by an input port as a time slot in a frame.

37. (Canceled)

38. (Previously Presented) A switch as claimed in claim 35, wherein said shared memory treats the input ports as logical input ports.

39. (Previously Presented) A switch as claimed in claim 35, wherein said shared memory places sequentially received packet data in a queue for a respective output port.

40. (Previously Presented) A switch as claimed in claim 35, wherein the data are received by said input ports and transmitted by said output ports as data exchange units.

41. (Currently Amended) A switch to switch time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

a plurality of input ports to receive TDM data and packet data, each TDM data having an associated time slot of a frame;

a plurality of output ports to transmit switched data;

a single shared memory to switch TDM data and packet data from said input ports to said output ports, said single shared memory to store TDM data received at said input ports based on said time slot of said frame of each TDM data, said single shared memory to store packet data received at said input ports based on routing data embedded in each packet data and based on which input port received each packet data;

a time slot interchange controller external to and coupled to said single shared memory to direct said single shared memory regarding storage of TDM data, wherein said time slot interchange controller selects a same address for said single shared memory corresponding to a respective time slot of a respective frame when TDM data is received in said respective time slot of said respective frame; and

a packet switch controller external to and coupled to said single shared memory to direct said single shared memory regarding storage of packet data.

42. (Canceled)

43. (Previously Presented) A switch as claimed in claim 41, wherein said single shared memory to treat the input ports as logical input ports.

44. (Previously Presented) A switch as claimed in claim 41, wherein said single shared memory to place sequentially received packet data in a queue for a respective output port.

45. (Previously Presented) A switch as claimed in claim 41, wherein said input ports to receive and said output ports to transmit TDM data and packet data as data exchange units.

46. (Previously Presented) A switch as claimed in claim 45, wherein the data exchange units for packet data comprise routing information used to determine output ports to switch the data exchange units.

47. (Previously Presented) A switch as claimed in claim 41, further comprising:
an input data router to route TDM data and packet data sequentially from said input ports to said single shared memory; and
an output data router to route TDM data and packet data sequentially from said single shared memory to said output ports.

48. (Canceled)

49. (Previously Presented) A system to switch time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:
said switch of claim 41; and
a stored switch configuration coupled to said switch to control switching of said TDM data and packet data from said input ports to said output ports.

50. (Currently Amended) A method to switch time division multiplexed (TDM) data and packet data, comprising:

receiving TDM data and packet data at ~~a plurality of~~ N input ports;

storing received TDM data in a single shared memory based on a time slot of a frame of each TDM data, wherein each frame has M time slots;

storing received packet data in said single shared memory based on routing data embedded in each packet data and based on which input port received each packet data; and

forwarding stored TDM data and packet data from said single shared memory to said output ports,

wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion, and wherein said TDM memory portion accommodates N x M TDM data.

51. (Previously Presented) The method of claim 50, wherein TDM data are stored in a preselected area of said single shared memory based on said time slots of said frames.

52. (Previously Presented) The method of claim 51, wherein packet data are stored in an area other than said preselected area of said single shared memory.

53. (Previously Presented) The method of claim 50, wherein the output ports for TDM data are determined based on said time slots of said frames, and wherein the output ports for packet data are determined based on said embedded routing data and based the input ports which received the packet data.

54. (Canceled)

55. (Previously Presented) The method of claim 32, wherein said preselected area of said single shared memory to store TDM data is partitioned according to time slots and frames.

56. (Previously Presented) The method of claim 32, wherein said preselected area of said single shared memory has partitions corresponding to each time slot of each frame.

57. (Canceled)

58. (Currently Amended) A switch for switching time division multiplexed (TDM) data and packet data from input ports to output ports, comprising;

a plurality of input ports to receive data, wherein each data comprises either TDM data or packet data;

a plurality of output ports to transmit switched data;

a shared memory coupling said input ports to said output ports, said shared memory to receive sequentially the data received from said input ports, said shared memory to switch a sequentially received data from a respective input port to a respective output port, wherein said shared memory comprises a TDM data memory portion and a packet data memory portion and
A switch as claimed in claim 37, wherein each section of the TDM data memory portion is assigned to a respective time slot of a respective frame;

a time slot interchange controller coupled to said shared memory to select addresses in said shared memory to store TDM data, said time slot interchange controller to select an address

of said shared memory for a TDM data based on a time slot of a frame in which said switch received the TDM data; and

a packet switch controller coupled to said shared memory to select addresses in said shared memory to store packet data, said packet switch controller to select an address of shared memory for a packet data based on routing data embedded in the packet data and based on the input port which received the packet data.

59. (Currently Amended) A switch to switch time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

a plurality of input ports to receive TDM data and packet data, each TDM data having an associated time slot of a frame;

a plurality of output ports to transmit switched data;

a single shared memory to switch TDM data and packet data from said input ports to said output ports, said single shared memory to store TDM data received at said input ports based on said time slot of said frame of each TDM data, said single shared memory to store packet data received at said input ports based on routing data embedded in each packet data and based on which input port received each packet data, wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion and~~A switch as claimed in claim 42,~~ wherein each address of the TDM memory portion is assigned to a respective time slot of a respective frame.

60. (Currently Amended) A switch to switch time division multiplexed (TDM) data and packet data from input ports to output ports, comprising:

a plurality of input ports to receive TDM data and packet data, each TDM data having an associated time slot of a frame;

a plurality of output ports to transmit switched data;

a single shared memory to switch TDM data and packet data from said input ports to said output ports, said single shared memory to store TDM data received at said input ports based on said time slot of said frame of each TDM data, said single shared memory to store packet data received at said input ports based on routing data embedded in each packet data and based on which input port received each packet data, wherein said single shared memory comprises a TDM data memory portion and a packet data memory portion and~~A switch as claimed in claim 42,~~ wherein said TDM memory portion accommodates $N \times M$ TDM data, wherein said switch has N input ports, wherein each frame has M time slots.

61. (Canceled)

62. (Previously Presented) The method of claim 51, wherein said preselected area of said single shared memory to store TDM data is sectioned according to time slots and frames.